AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (CANCELLED)

2. (CANCELLED)

3. (CANCELLED)

4. (CANCELLED)

5. (CANCELLED)

6. (CANCELLED)

7. (CANCELLED)

8. (CANCELLED)

9. (CANCELLED)

10. (CANCELLED)

11. (CANCELLED)

12. (CANCELLED)

13. (CANCELLED)

14. (CANCELLED)

15. (CANCELLED)

16. (CANCELLED)

17. (CANCELLED)

18. (CANCELLED)

19. (CANCELLED)

20. (CANCELLED)

21. (CANCELLED)

22. (CANCELLED)

23. (CANCELLED)

24. (CANCELLED)

25. (CANCELLED)

26. (CANCELLED)

27. (CANCELLED)

28. (CANCELLED)

29. (CANCELLED)

30. (CANCELLED)

31. (CANCELLED)

32. (CANCELLED)

33. (CANCELLED)

34. (CANCELLED)

35. (CANCELLED)

36. (CANCELLED)

37. (CANCELLED)

38. (CANCELLED)

39. (CANCELLED)

40. (CANCELLED)

41. (CANCELLED)

42. (CANCELLED)

43. (CANCELLED)

44. (CANCELLED)

45. (CANCELLED)

46. (CANCELLED)

47. (CANCELLED)

48. (CANCELLED)

49. (CANCELLED)

50. (CANCELLED)

51. (CANCELLED)

52. (CANCELLED)

53. (CANCELLED)

54. (CANCELLED)

55. (CANCELLED)

56. (CANCELLED)

57. (CANCELLED)

58. (CANCELLED)

59. (CANCELLED)

60. (CANCELLED)

61. (CANCELLED)

62. (CANCELLED)

63. (CANCELLED)

64. (CANCELLED)

65. (CANCELLED)

66. (CANCELLED)

67. (CANCELLED)

68. (CANCELLED)

69. (CANCELLED)

70. (CANCELLED)

71. (CANCELLED)

72. (CANCELLED)

73. (CANCELLED)

74. (CANCELLED)

75. (CANCELLED)

76. (CANCELLED)

77. (New) A method for determining the location of a mobile terminal in a cellular communication network, the mobile terminal being configured to receive signals from satellites of a satellite-based positioning system, the method comprising:

receiving, at the mobile terminal, signals from a plurality of satellites;

measuring, at the mobile terminal, pseudoranges to the satellites at time of signal reception;

calculating the location of the mobile terminal based on parameters representing the measured pseudoranges;

determining a quality measure associated with the location calculation;

comparing the determined quality measure to a first predefined quality criterion; and

recalculating, if the quality measure does not fulfill the first predefined quality criterion, the location of the mobile terminal with added correction for error in at least one parameter representing a parameter measured at the mobile terminal, wherein

said calculating step uses a parameter for time of signal reception measured at the mobile terminal, and

said recalculating step involves correction for error in the parameter for the time of signal reception by using a transmission time offset parameter as an additional unknown parameter.

78. (New) The method of claim 77, further comprising:

determining a quality measure associated with the location recalculation of said recalculating step;

comparing the determined quality measure of the recalculation with a second predefined quality criterion; and

performing, if the quality measure does not fulfill the second predefined quality criterion, a second recalculation of the location of the mobile terminal in an iterative calculation procedure for pseudorange outlier correction.

79. (New) The method of claim 77, further comprising:

determining a quality measure associated with the location recalculation with a second predefined quality criterion; and

performing, if the quality measure does not fulfill the second predefined quality criterion, a second recalculation of the location of the mobile terminal with correction for error in the time of signal reception by using a transmission time offset parameter as an additional unknown parameter.

80. (New) The method of claim 78, further comprising:

determining a quality measure associated with the second recalculation;

comparing the determined quality measure of the second recalculation with a third predefined quality criterion; and

performing, if the quality measure does not fulfill the third predefined quality criterion, a third recalculation of the location of the mobile terminal with the correction using the transmission time offset parameter as an additional unknown parameter in combination with the correction for error through the iterative calculation procedure for pseudorange outlier correction.

81. (New) The method of claim 78, wherein said iterative calculation procedure for pseudorange outlier correction involves location computations using a transmission time offset parameter as an additional unknown parameter for correction for error in the parameter representing the time of signal reception.

82. (New) The method of claim 77, wherein said calculating step uses a transmission time offset parameter as an additional unknown parameter and said recalculating step involves correction for error in at least one representative of the pseudoranges measured at the mobile terminal using the transmission time offset parameter in an iterative calculation procedure for pseudorange outlier correction.

83. (New) The method of any of claim 78, wherein the iterative calculation procedure for pseudorange outlier correction in turn comprises:

computing the location of the mobile terminal repeatedly, omitting one pseudorange measurement at a time;

determining a quality measure associated with each computed location;

evaluating the determined quality measures, whereby a comparatively high quality is an indication that the omitted pseudorange is an outlier; and

removing, if an outlier pseudorange was detected in the evaluating step, the outlier pseudorange and using the location computed with the outlier pseudorange omitted as mobile terminal location.

84. (New) The method of claim 77, wherein the transmission time offset parameter represents the time difference between the time of signal transmission from the respective satellites and the network time of the satellite-based positioning system.

85. (New) The method of claim 77, wherein the quality measure is a measure of the parameter estimate quality determined using the residual of a least squares solution for the mobile terminal location.

86. (New) The method of of claim 77, further comprising the step of reconstructing, in case at least one of the measured pseudoranges is a truncated pseudorange, a complete pseudorange from the truncated pseudorange based on a parameter for time of signal reception at the mobile terminal and an approximate mobile terminal location.

87. (New) The method of claim 77, wherein the respective steps of calculating and recalculating in turn comprises:

defining a nonlinear equation system with unknown parameters at least for the mobile terminal location and the mobile terminal clock bias;

linearizing the equation system such that the satellite motion is modeled as linear with a nominal satellite position and a velocity vector; and

solving the equation system for the mobile terminal location.

88. (New) The method of claim 87, comprising:

determining the nominal position for the respective satellites using a time of satellite transmission determined based on a measured pseudorange and a parameter for time of signal reception at the mobile terminal; and

expressing the satellite position in a local tangential coordinate system with two horizontal and one vertical coordinate.

89. (New) A mobile terminal in a cellular communication network, the mobile terminal being provided with means for determining its location, comprising:

means for receiving signals from a plurality of satellites of a satellite-based positioning system;

means for measuring pseudoranges to the satellites at time of signal reception;

means for calculating the location of the mobile terminal based on parameters representing the measured pseudoranges,

means for determining a quality measure associated with the location calculation;

means for comparing the determined quality measure to a first predefined quality criterion; and

means for recalculating, if the quality measure does not fulfill the first predefined quality criterion, the location of the mobile terminal with added correction for error in at least one parameter representing a parameter measured at the mobile terminal, wherein said means for calculating is adapted for using a parameter for time of signal reception measured at the mobile terminal and said means for recalculating involves means for correction for error in the parameter for the time of signal reception through a transmission time offset parameter as an additional unknown parameter.

90. (New) The mobile terminal of claim 89, further comprising:

means for determining a quality measure associated with the location recalculation;

means for a second recalculation, if the quality measure does not fulfill the second predefined quality criterion, of the location of the mobile terminal involving means for iterative pseudorange outlier correction.

91. (New) The mobile terminal of claim 90, further comprising:

means for determining a quality measure associated with the location recalculation;

means for comparing the determined quality measure of the recalculation with a second predefmed quality criterion; and

means for a second recalculation, if the quality measure does not fulfill the second predelined quality criterion, of the location of the mobile terminal with correction for error in the time of signal reception through a transmission time offset parameter as an additional unknown parameter.

92. (New) The mobile terminal of claim 90, further comprising:

means for determining a quality measure associated with the second recalculation;

means for comparing the determined quality measure of the second recalculation with a third predefined quality criterion; and

means for a third recalculation of the location of the mobile terminal, in case the quality measure does not fulfill the third predefined quality criterion,

said third recalculation comprising the correction for error through the transmission time offset parameter in combination with the iterative pseudorange outlier correction.

93. (New) The mobile terminal of claim 90, wherein said iterative pseudorange outlier correction involves means for location computations with a transmission time offset parameter as an additional unknown parameter.

94. (New) The mobile terminal of claim 89, wherein said means for calculating is adapted for using a transmission time offset parameter as an additional unknown parameter and said means for recalculating involves means for correction for error in at least one representative of the pseudoranges measured at the mobile terminal using the transmission time offset parameter in iterative pseudorange outlier correction.

95. (New) The mobile terminal of claim 90, comprising means for iterative calculation with pseudorange outlier correction comprising;
    means for repeatedly computing the location of the mobile terminal, omitting one pseudorange measurement at a time;
    means for determining a quality measure for each computed location;
    means for evaluating the determined quality measures, whereby a comparatively high quality is an indication that the omitted pseudorange is an outlier; and
    means for removing, if an outlier pseudorange was detected by the evaluating means, the outlier pseudorange, whereby the location computed with the outlier pseudorange omitted is used as mobile terminal location.

96. (New) The mobile terminal of claim 89, wherein the quality measure is based on the residual of a least squares solution for the mobile terminal location.

97. (New) The mobile terminal of claim 89, further comprising means for reconstructing a complete pseudorange from a measured truncated pseudorange based on a parameter for time of signal reception at the mobile terminal and an approximate mobile terminal location.

98. (New) A positioning node in a cellular communication network with means for determining the location of a mobile terminal in the cellular communication network, the mobile terminal being provided with means for receiving signals from satellites of a satellite-based positioning system, the node comprising:

means for receiving, from the mobile terminal, parameters relating to measured pseudoranges to a plurality of satellites, the pseudoranges relating to the time of measurement;

means for calculating the location of the mobile terminal based on parameters representing the measured pseudoranges;

means for determining a quality measure associated with the location calculation;

means for comparing the determined quality measure to a first predefined quality criterion; and

means for recalculating, if the quality measure does not fulfill the first predefined quality criterion, the location of the mobile terminal with added correction for error in at least one parameter representing a parameter measured at the mobile terminal, wherein said means for calculating is adapted for using a parameter for time of signal reception reported by the mobile terminal and said means for recalculating involves means for correction for error in the parameter for the time of signal reception through a transmission time offset parameter as an additional unknown parameter.

99. (New) The positioning node of claim 98, further comprising;

means for determining a. quality measure associated with the location recalculation;

means for comparing the determined quality measure of the recalculation with a second predefined quality criterion; and

means for a second recalculation, if the quality measure does not fulfill the second predefined quality criterion, of the location of the mobile terminal involving means for iterative pseudorange outlier correction.

100. (New) The positioning node of claim 98, further comprising:

means for determining a quality measure associated with the location recalculation;

means for comparing the determined quality measure of the recalculation with a second predefined quality criterion; and

means for a second recalculation, if the quality measure does not fulfill the second predefined quality criterion, of the location of the mobile terminal with correction for error in the time of signal reception through a transmission time offset parameter as an additional unknown parameter.

101. (New) The positioning node of claim 99, further comprising:

means for determining a quality measure associated with the second recalculation;

means for comparing the determined quality measure of the second recalculation with a third predefined quality criterion; and

means for a third recalculation of the location of the mobile terminal, in case the quality measure does not fulfill the third predefined quality criterion, said third recalculation comprising the correction through the transmission time offset parameter in combination with the iterative pseudorange outlier correction.

102. (New) The positioning node of claim 99, wherein said iterative pseudorange outlier correction involves means for location computation with a transmission time offset parameter as an additional unknown parameter.

103. (New) The positioning node of claim 98, wherein said means for calculating is adapted for using a transmission time offset parameter and said means for recalculating involves means for correction for error in at least one representative of the pseudoranges measured at the mobile terminal using the transmission time offset parameter in iterative pseudorange outlier correction.

104. (New) The positioning node of claim 99, comprising means for iterative calculation with pseudorange outlier correction that in turn includes:

means for repeatedly computing the location of the mobile terminal, omitting one pseudorange measurement at a time;

means for determining a quality measure for each computed location;

means for evaluating the determined quality measures, whereby a comparatively high quality is an indication that the omitted pseudorange is an outlier; and

means for removing, if an outlier pseudorange was detected by the evaluating means, the outlier pseudorange, whereby the location computed with the outlier pseudorange omitted is used as mobile terminal location.

105. (New) The position node of claim 99, wherein the quality measure is based on the residual of at least squares solution for the mobile terminal location.

106. (New) The positioning node of claim 99, further comprising means for reconstructing a complete pseudorange from a measured truncated pseudorange based on a parameter for time of signal reception at the mobile terminal and an approximate mobile terminal location.

107. (New) A communication system with means for determining the location of a mobile terminal in a cellular communication network, the mobile terminal being provided with means for receiving signals from satellites of a satellite-based positioning system, comprising the positioning node of claim 98.